



FAG Motion Guard CONCEPT6

Automatic single-point and multiple-point lubrication system

User manual

FAG Motion Guard CONCEPT6

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Features This user manual describes how to work safely on and with the automatic lubricator FAG Motion Guard CONCEPT6.

The safety guidelines must be observed.

Attention! Any persons working on and with the lubricator must have the user manual available for their work and must observe the relevant information and guidelines.

The user manual must always be complete and in a fully legible condition.

The relevant disposal guidelines must be observed.

From this point onward, the FAG Motion Guard CONCEPT6 is referred to as the lubricator and the lubricant cartridge as the LC unit.

Application The lubricator is clearly identified by a sticker on the drive unit and the LC unit.

It is intended for machinery and plant where lubrication is to be carried out continually over the pre-calculated period.

The lubricator supplies one or more lubrication points with grease at a pressure of up to max. 25 bar.

Characteristic areas of application include the lubrication points on rolling and plain bearings, drive and conveyor chains, guidance systems, open gearboxes and seals.

Attention! The lubricator must only be used for the purposes stated in the order and confirmed by Schaeffler KG and in accordance with the conditions of use, settings and variations described in this user manual.

The lubrication system must only be equipped with connections and pressure-resistant feed lines from Schaeffler KG.

The lubricator must be protected against chemically aggressive ambient media.

Scope of delivery Lubricator, *Figure 1*.



Figure 1

Delivery scope of lubricator
(lubricator with holder, battery,
cover and user manual)

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LC unit:

The lubricator can be used with two LC units of different sizes. The volume of the LC unit and the grease fill correspond to the specific order.

The delivery should be checked as soon as it is received. Schaeffler KG accepts no liability for any defects that are the subject of subsequent complaints.

The packaging and the device should be checked immediately for any damage during transit. The carrier should be informed of any damage without delay and the damage should be photographed if necessary.

Attention! The LC unit and suitable grease must be ordered separately.



Figure 2
LC unit
(available in two sizes)

Legal requirements

Liability

The information, data and guidelines given in the user manual were current at the time of editorial approval. The data, illustrations and descriptions cannot be used as grounds for any claims relating to lubricators that have already been delivered.

Attention! Schaeffler KG accepts no liability for any damage or operational malfunctions that occur as a result of improper use or unauthorised changes to the drive unit or LC unit.

This also applies to incorrect work on or with the lubricator, errors in use or adjustment, incorrect variation sizes of the lubricator or a failure to observe the user manual.

Safety guidelines

Responsible persons

Operator The operator is the natural or juristic person that uses the lubricator or on whose instruction the lubricator is used.

Attention! The operator or his safety co-ordinator are responsible for compliance with all relevant specifications, guidelines and regulations.
All work on and with the lubricator may only be carried out by qualified personnel.

Qualified personnel Persons that are authorised by the person responsible for safety of the plant, on the basis of their experience and knowledge, to carry out the activities required in the specific case.

Principles The lubricator must be filled with the correct grease and adjusted such that, when it is correctly adjusted and mounted and used as specified, it functions without defects and does not cause any hazards. This also applies to the interaction with the complete plant and the points to be lubricated.
Material damage that could arise due to failure of the lubricator must be prevented by suitable measures.

Attention! All retrofitting, modification and conversion of the lubricator is prohibited.
While working on machinery and plant, the safety guidelines and user manuals of the manufacturers must be observed.
The LC unit must not be opened or refilled under any circumstances.
Keep grease away from eyes, skin and clothing.
The safety data sheets for the greases must be observed.
Only original LC units from Schaeffler KG may be used.

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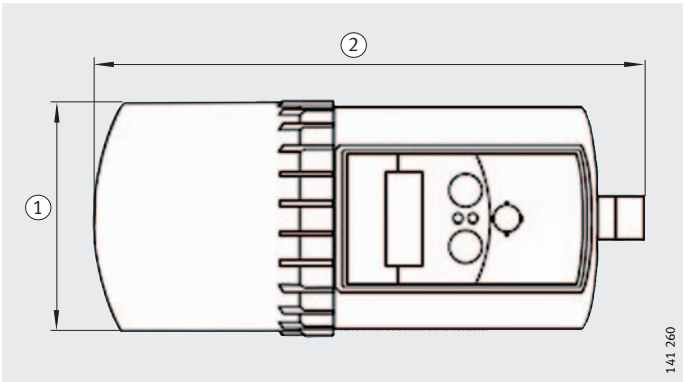
Technical data

Key data

Description	CONCEPT6 250	CONCEPT6 500
Volume of LC unit	250 cm ²	500 cm ²
Length (L)	210 mm	260 mm
Diameter (D)	92 mm	92 mm
Weight when empty	approx. 1,30 kg	approx. 1,37 kg
Weight when filled with Arcanol MULTITOP	approx. 1,53 kg	approx. 1,82 kg
Dispensing time	1 day to 24 months	1 day to 12 months
Dispensing quantity per lubrication impulse	0,5 cm ³	
Operating temperature	-20 °C to +60 °C	
Maximum pressure build-up	25 bar	A combination of these maximum values is only achievable at temperatures >20 °C. Application is restricted at lower temperatures, see <i>Diagram 1</i> , page 9.
Hose length (5 mm inside diameter)	max. 5 m	
Lubricants	Greases up to consistency class NLGI 2	
Power supply		
■ from 0 °C to +60 °C	Battery set 3 V (alkaline manganese, not rechargeable)	
■ from -20 °C to +60 °C	Battery set LT 3 V (lithium, not rechargeable)	
Connecting thread	G ³ / ₈ external – G ¹ / ₈ internal	
Protection class	IP 54	

- ① Diameter
② Length

Figure 3
Lubricator



Design

The lubricator components correspond to the state of technology at the time of delivery and are always regarded as operationally reliable.

The components, *Figure 4*:

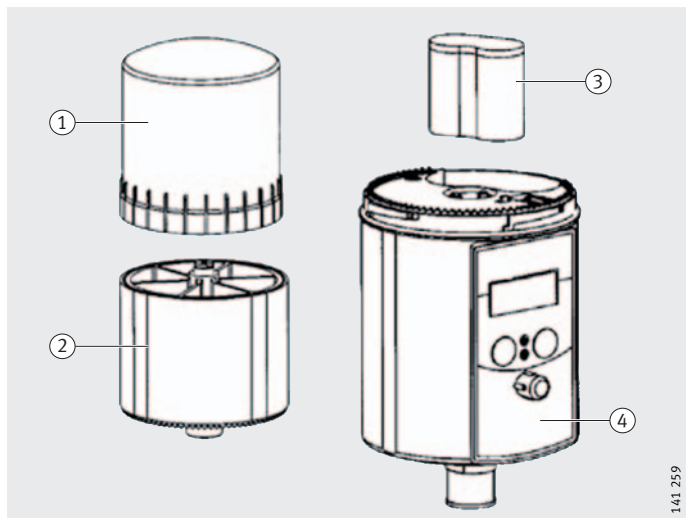
- Cover for the drive system ①,
- LC unit LC250 or LC500 containing lubricant ②,
- Battery set ③,
- Drive system ④, comprising a geared motor, pump, plug for connection cable to optional lubricant distributor C6-MP-DISTRIBUTOR and the electronic unit.

With the exception of the LC unit, all of the components can be reused several times.

- ① Cover
- ② LC unit
- ③ Battery set
- ④ Drive system

Figure 4

Main components of the FAG lubricator



Function

The lubricator supplies the lubrication point with the required quantity of grease at a pre-selectable time interval (1 day up to 24 months).

The lubricant is transported from the LC unit into the drive unit by a spindle-driven piston. The pump in the drive unit transports the lubricant to the lubrication point at a pressure of up to maximum 25 bar.

The size of the LC unit and the dispensing time can be configured in the drive unit

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Operating conditions

Operating temperature

A uniform dispensing pattern and the build-up of pressure to a maximum of 25 bar can only be ensured in the temperature range of -20 °C to +60 °C, see *Diagram 1*, page 9.

Ambient conditions

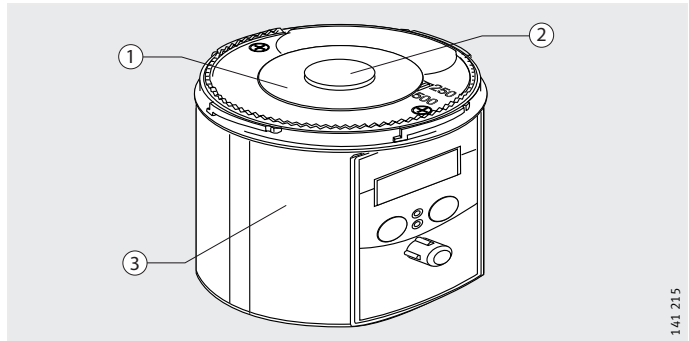
If the individual components are fitted together correctly, the lubricators are resistant to dust and spray water. However, the sealing rings and plastics may be attacked by ambient media.

Storage

Lubricators must only be stored in interior rooms that are dry, dust-free and protected against sunlight, at a storage temperature of +15 °C to +25 °C. Under no circumstances should the cover disk ① and the stopper ② be removed from the drive ③ permanently, *Figure 5*, as this will run down the internal back-up battery. The cover disk and the stopper may only be removed immediately prior to initial operation.

- ① Cover disk
- ② Stopper
- ③ Drive

Figure 5
Drive unit



The LC unit can be stored for up to two years; the lubricant fill date should be taken as the controlling factor. All other components – with the exception of the battery set – should also be replaced after a maximum of two years.

Attention!

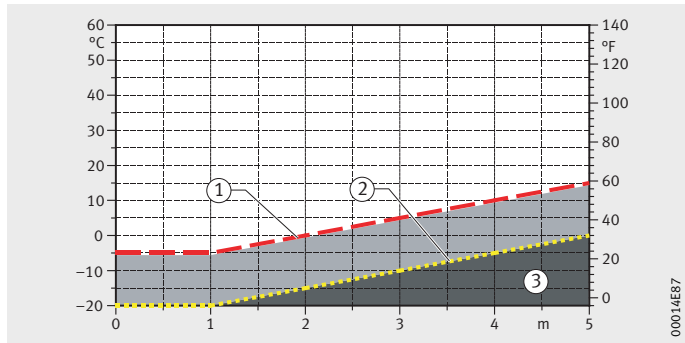
The battery set can be stored for a maximum of one year.
Do not store the drive and cover disk separately.

Specifications

- ① Range of application, standard grease
- ② Range of application, low-temperature grease
- ③ Impermissible, outside of the specifications

Diagram 1

Relationship between operating temperature and hose length



Hose length between 0 m and 5 m (inside diameter 5 mm),
operating temperature between -20 °C and +60 °C;
based on standard greases at Schaeffler KG.

Example

Examples of calculated values from *Diagram 1*:

- The operating temperature is +5 °C.
Maximum hose lengths?
 - Working across to the right from the “+5 °C” mark gives a maximum hose length of 3 m for standard grease and a maximum hose length of 5 m for low-temperature grease.
- Hose feed line length 4 m.
Maximum operating temperatures?
 - Working upwards from the “4 m” mark gives a maximum of +10 °C for standard grease and a maximum of –5 °C for low-temperature grease.

The diagram also shows that the maximum hose length of 5 m can be used with standard grease within a temperature range of +15 °C to +60 °C and with low-temperature grease between 0 °C and +15 °C.

Attention!

Schaeffler KG accepts no liability for applications which fall outside of the specifications.

Schaeffler Customer Service must be contacted if the application falls outside of the specifications in *Diagram 1*.

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Assembly and mounting Wall-mounting the drive

Procedure for cases where direct fixing at the lubrication point is not possible:

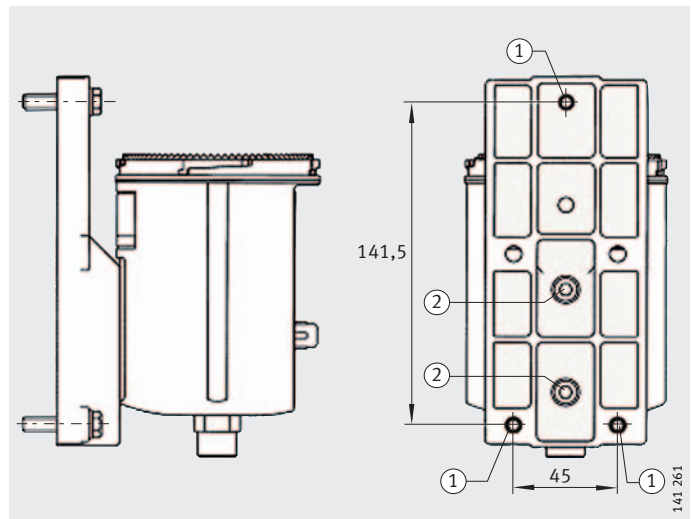
- Screw the holder and drive to a carrier assembly on the device. In the event of a metallic base material, use a minimum of three hexagon head screws M6×25; hole pattern for the three fixing screws in accordance with *Figure 6* and the attached hole template.
- The lubrication points and the entire lubricant feed line must be pre-greased using the same lubricant as that contained in the LC unit (lubricant cartridges for manual grease guns are available as accessories, page 25).
- Connect the lubricant feed line ($G^3/8$ external or $G^1/8$ internal) to the drive's outlet and run this to the lubrication point. If the thread does not match the connecting thread at the lubrication point, use an appropriate reducer.
- Length of the lubricant feed line, see *Diagram 1*, page 9.

Attention!

Unwanted leakages can only be prevented by fitting connections and lubricant feed lines correctly and securely.

- ① 3 hexagon head screws M6×25 for wall-mounting
- ② 2 hexagon head screws M6×16 for lubricator and holder (maximum torque 3 Nm)

Figure 6
Wall-mounting the drive



Mounting the lubricator

Insert the battery set into the battery compartment, *Figure 7* ④. Note the direction of the arrow on the battery set label.

Attention!

Only battery sets from Schaeffler KG may be used.

Batteries should not be exposed to extreme heat or thrown into an open fire.

The safety data sheets for batteries must be observed.

- ① Teeth for positioning the LC unit
- ② Contact bridge, no function
- ③ Drive catch for spindle drive
- ④ Battery compartment

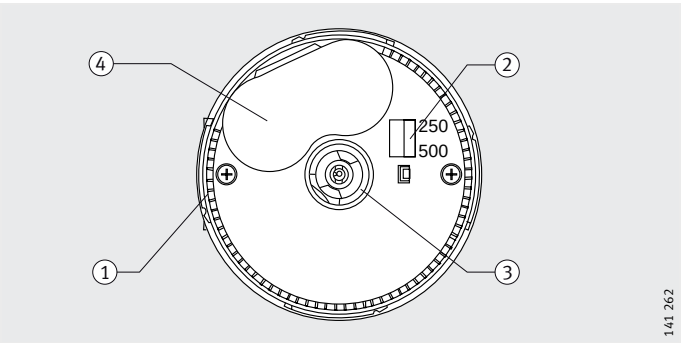


Figure 7
Underside of the drive system

Insert the LC unit into the cover and remove the sealing cap, *Figure 8*.

- ① Cover
- ② LC unit
- ③ Sealing cap

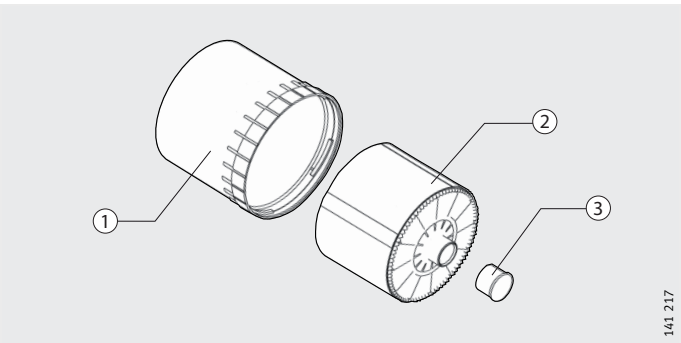


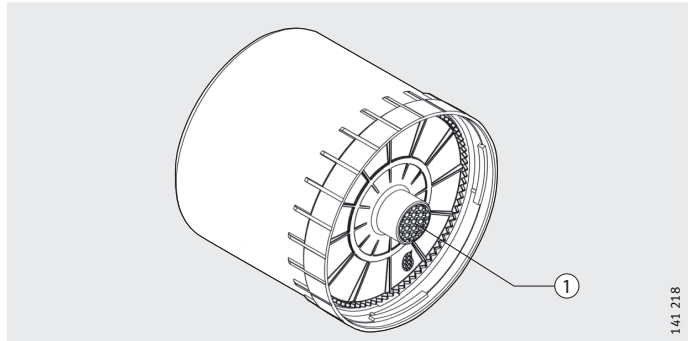
Figure 8
Composition of the LC unit

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Push the LC unit into the cover until the grease escapes, *Figure 9* ①.

① Outlet opening

Figure 9
Preparing the LC unit

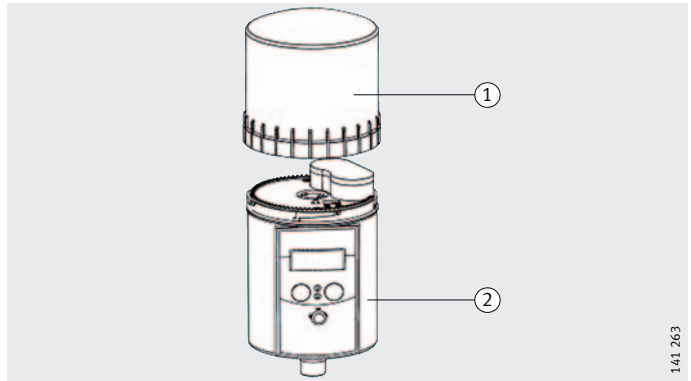


Position the LC unit and cover on the drive so that the catch locks into place, *Figure 7* ②, page 11, and the teeth, *Figure 7* ③, page 11, engage with each other. Rotate the cover in a clockwise direction until the bayonet catch locks into place, see *Figure 10*.

Attention! The LC unit must be connected to the drive immediately after removing the cover disk and the sealing cap, *Figure 8*, page 11.

① Cover containing LC unit
② Drive

Figure 10
Connect drive and LC unit



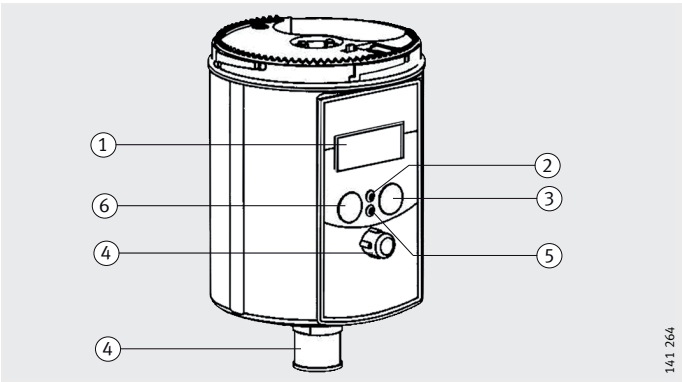
Display and controls

The operating condition of the lubricator can be determined from the green and red LEDs and from the display on the control unit, *Figure 11*.

The settings for the lubricator can be performed using the keys ③ and ⑥ and monitored on the display. Error messages generated when there is excessive pressure in the lubricant feed line for example, are also displayed.

- ① LC display
- ② Red LED
- ③ “OFF/ON SELECT” key
- ④ FAG C6-MP-DISTRIBUTOR connector (for up to 6 lubrication points)
- ⑤ Green LED
- ⑥ “MODE SAVE” key

Figure 11
Display and control keys
on the drive



Function displays

Display

The “--” display cannot be deactivated, irrespective of the condition of the battery set. Settings, operating conditions and error messages relating to the lubricator are shown on the display, *Figure 11* ①.

During defect-free operation, the display shows the residual volume of the fitted LC unit in percent volume (% vol.).

LED signals

The LEDs on the drive, *Figure 11* ② and ⑤, are interpreted as follows:

LED lit	Signal	Description
Green	Flashing every 10 seconds	System running
Red	Flashing every 3 seconds	Error or malfunction
Green and red	Flashing every 3 seconds	Replace LC unit immediately
Green	Continuous	Motor running; dispensing operation

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Menu control keys

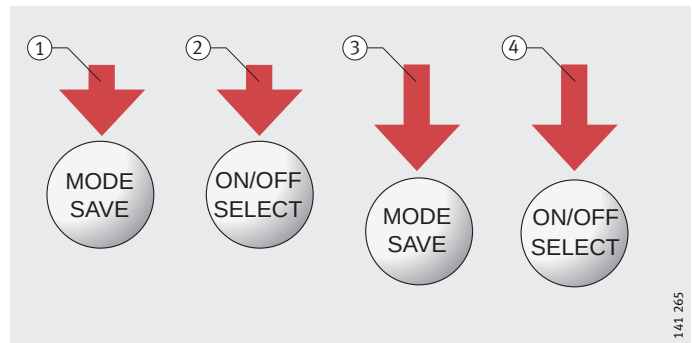
There are two keys on the control unit, *Figure 11* ③ and ⑥, page 13, for setting and menu navigation.

- The key “MODE SAVE” accesses the configuration menu, changes the mode and saves the modified settings for further operation.
- The “ON/OFF SELECT” key is used
 - for activation and deactivation
 - to increase the dispensing time in days, weeks or months by one calendar unit per keystroke, to change the LC unit, to configure the outlets and to set the PIN.

- ① Short: Selection
- ② Short: Change values
- ③ Long > 4 s: Switch to new mode, store set values
- ④ Long > 4 s: Activate and deactivate, return to previous mode, delete last change

Figure 12

Functions of the control keys
(short or long keystroke)



Calculation of the dispensing time

The dispensing time is set at six months by the factory. The dispensing time for the lubrication point is based on the information provided by the plant manufacturer on the lubrication quantity required in cubic centimetres (cm³/100 h) for 100 operating hours. The dispensing time can then be calculated using the table.

Average dispensing quantity in cm ³ , specified for the respective LC unit per 100 operating hours						
Setting parameter	Setting mode					
Dispensing time	LC250 (250 cm ³)			LC500 (500 cm ³)		
	Days	Weeks	Months	Days	Weeks	Months
1	1041,7	148,8	34,3	2083,3	297,6	68,5
2	520,8	74,4	17,1	1041,7	148,8	34,3
3	347,2	49,6	11,4	694,4	99,2	22,8
4	260,4	37,2	8,6	520,8	74,4	17,1
5	208,3	29,8	6,9	416,7	59,5	13,7
6	173,6	24,8	5,7	347,2	49,6	11,4
7	148,8	21,3	4,9	297,6	42,5	9,8
8	130,2	18,6	4,3	260,4	37,2	8,6
9	115,7	16,5	3,8	231,5	33,1	7,6
10	104,2	14,9	3,4	208,3	29,8	6,9
11	94,7	13,5	3,1	189,4	27,1	6,2
12	86,8	12,4	2,9	173,6	24,8	5,7
13	80,1	11,4	2,6	160,3	22,9	–
14	74,4	10,6	2,4	148,8	21,3	–
15	69,4	9,9	2,3	138,9	19,8	–
16	65,1	9,3	2,1	130,2	18,6	–
17	61,3	8,8	2,0	122,5	17,5	–
18	57,9	8,3	1,9	115,7	16,5	–
19	54,8	7,8	1,8	109,6	15,7	–
20	52,1	7,4	1,7	104,2	14,9	–
21	49,6	7,1	1,6	99,2	14,2	–
22	47,3	6,8	1,6	94,7	13,5	–
23	45,3	6,5	1,5	90,6	12,9	–
24	43,4	6,2	1,4	86,8	12,4	–
25	41,7	–	–	83,3	–	–
26	40,1	–	–	80,1	–	–
27	38,6	–	–	77,2	–	–
28	37,2	–	–	74,4	–	–
29	35,9	–	–	71,8	–	–
30	34,7	–	–	69,4	–	–

The remaining running time of the lubricator must be recalculated following one or more special dispensing operations, page 21. This also applies to deactivation in the event of extended machinery downtime. The remaining running time must be recorded in the lubrication and maintenance plan. This task is made even easier by the software FAG Motion Guard SELECT MANAGER. This can be downloaded free of charge from the website www.fis-services.

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Initial operation and handling

The following must be ensured before initial operation:

- Is the lubricator outwardly intact?
- Does the LC unit contain the right grease?
- Has the cover disk, complete with stopper, been removed from the drive?
- Have all of the components been correctly fitted together and secured?

Attention!

Always check the lubricator settings before initial operation and make corrections as necessary.

Work exactly to the user manual.

Upon initial operation, the pump system in the drive unit is pre-filled with a universal grease. After approximately ten dispensing operations, this fill is drained off and replaced with the grease from the LC unit; perform special dispensing operations where necessary.

Operation

Hold the “ON/OFF SELECT” key down for longer than 4 s.

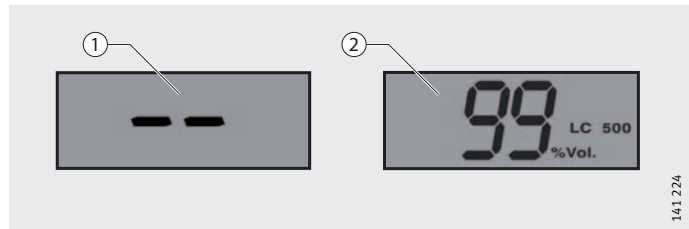
The display ①, *Figure 13*, is replaced with the residual volume display ②, for example “99 % VOL” for a new LC unit.

The green LED flashes. Then set the volume of the LC unit, the dispensing time, the outlets for any connected C6-MP-DISTRIBUTOR and the PIN using the keys on the display, *Figure 14*, page 18.

- ① Prior to activation
- ② Following activation

Figure 13

Displays upon activation



Then perform a one-off special dispensing operation. The starting up of the drive motor and the illumination of the green LED indicate that the dispensing operation has begun. The residual volume of the LC unit appears on the display, *Figure 13* ②.

During operation	Check regularly: ■ Seal integrity of the lubricator, the feed lines and the connections ■ Lubricant fill level ■ Correct position and finger tight screw mounting of all components.
Special dispensing operations	
Machinery downtime	Calculate the modified dispensing time and incorporate this into the remaining running time of the lubricator and into the lubrication and maintenance plan.
Malfunctions	If the control system is showing a malfunction, the reason will appear on the display. Further information is contained in the defect table on page 24.
Deactivation	Hold the “ON/OFF SELECT” key down for longer than 4 s, until the residual volume display <i>Figure 13 ②</i> , page 16, disappears and is replaced with the display “--”. All lubricator settings remain stored so that the program can continue from the point at which it was stopped upon reactivation.

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Display settings and contents

The configuration menu should be worked through from top to bottom and from left to right and corresponds to the process for a deactivated lubricator. Configuration is also possible in an activated state.

- ① Delivered condition of fitted LC unit
- ② Time-setting and PIN-reset display
- ③ PIN entry, first digit
- ④ PIN entry, second digit
- ⑤ Select volume of the LC unit
- ⑥ Set month, weeks or days
- ⑦ Switching to days or weeks
- ⑧ Set outlets (with distributor only)
- ⑨ Outlet 1 activated
- ⑩ Outlet 2 activated
- ⑪ Change PIN, first digit (for initial configuration or following PIN reset only)
- ⑫ Change PIN, second digit (for initial configuration or following PIN reset only)
- ⑬ Configuration complete

Figure 14
Configuration menu settings
and displays

①		--	
②		Config. Time 06 Months	
③		PIN 00	
④		PIN 00	
⑤		Config. LC LC 500	
⑥		Config. Time 06 Months	
⑦		Config. Time 01 Weeks	
⑧		Config. 1	
⑨		Config. 1	
⑩		Config. 2	
⑪		Config. PIN 00	
⑫		Config. PIN 00	
⑬		--	

Configuration sections

Function	Press for short period	Press for long period > 4 s	Signal	Go to
Symbol	Arrow pointing downwards	Longer arrow	Symbol	⇒

INTRO	INTRO provides information (INFO) and asks for the current PIN (PIN entry). Changes are made in the configuration menu and its sections (LC, time, outlets, PIN).
Configuration menu	
LC unit	“ON/OFF SELECT” key for setting LC250 or LC500.
Time	Setting in either months, weeks or days. Once the maximum setting parameter has been reached, counting always starts again with the digit 01. The last screen contents displayed are adopted by holding down the “MODE SAVE” key for a long period.
Outlets	The activation of outlets 1 to 6 is indicated by the filled squares. If no FAG C6-MP-DISTRIBUTOR is connected, the configuration of the outlets will have no effect.
PIN	A personal PIN protects the settings from unauthorised access. The PIN can only be changed during the very first configuration or following a PIN reset. The PIN reset (pressing the keys for a short period: left-left-right-right-left in INTRO-Info menu) returns the personal PIN to its delivered state of “00”. If the time display disappears briefly, the reset has been successful. All other settings remain unchanged.
Do not adopt changes in the respective configuration section	If the settings in the currently displayed configuration section (LC, time, outlets, PIN) are not to be adopted, the “ON/OFF SELECT” key must be held down until the symbol (“-”) for “OFF” or the residual volume in the LC unit appears in “% VOL”. All other settings and previously adopted changes remain unaffected.
Automatic termination of the configuration mode	If, during a period of 180 seconds, no key is activated in a configuration section, the control system automatically reverts to the previously set mode (“ON” or “OFF”), without adopting the changes. All previously implemented settings and adopted changes remain unaffected.

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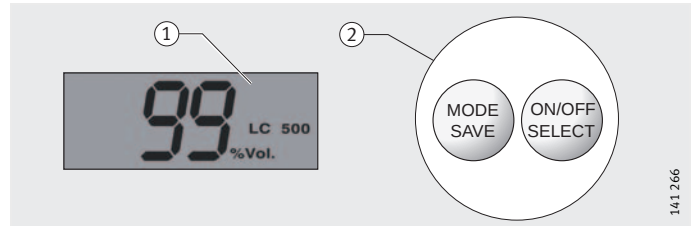
Special dispensing operation

The option exists to perform a special dispensing operation in order to supply a lubrication point with additional lubricant. This involves holding down the “MODE SAVE” and “ON/OFF SELECT” keys for an equal length of time.

- ① Activated lubricator (“ON/OFF SELECT” key)
- ② To carry out the special dispensing operation, hold down both keys at the same time

Figure 15

“Special dispensing operation” function



The special dispensing operation can only take place at a temperature of more than 0 °C (ice crystal, Figure 16, is not visible) and if the lubricator is not dispensing at the exact same time.

There is a minimum period of 30 seconds between two special dispensing operations. On each additional occasion that both keys are held down for long periods, Figure 15 ② during this time, this is registered and leads to further special dispensing operations. A maximum of 5 special dispensing operations are stored by the system.

Attention!

The remaining running time, which has been reduced as a result of the dispensed lubricant quantity, must be included in the lubrication and maintenance plan.

Low-temperature deactivation

The permissible temperature range of 0 °C to –19 °C is indicated by a flashing ice crystal symbol, Figure 16. Within this temperature range, the lubricator will continue to work without interruption.

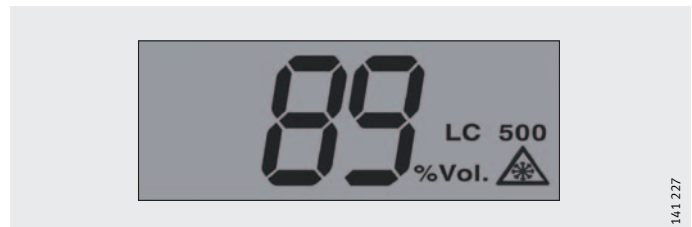
Attention!

Special dispensing operations cannot be performed within this temperature range.

Flashing ice crystal indicates 0 °C to –19 °C (shown here with 89 % vol. as an example)

Figure 16

“Low-temperature deactivation” function



If the temperature drops to –20 °C or less, the lubricator shuts down. The ice crystal symbol appears permanently; the residual quantity in “% vol.” is still displayed.

Attention!

No further lubricant is dispensed from this point onwards. Damage may occur if appropriate measures are not taken.

If the temperature rises back to –19 °C, or higher to 0 °C, the lubricator reactivates and the ice crystal symbol flashes.

Calculating the remaining running time

Attention!

All dispensing operations which have accumulated during deactivation (with the exception of special dispensing operations) are made good, whereby up to two additional dispensing operations are performed for each planned dispensing operation.

The remaining running time must be recalculated and recorded following each special dispensing operation and deactivation.

Remaining running time

$$R_{LZ} = \frac{SZ \cdot RV}{100}$$

Definitions:

SZ: Dispensing time set for the lubricator (days, weeks, months)

RV: Displayed residual volume (% vol.)

R_{LZ}: Remaining running time (days, weeks, months, dependent on SZ)

Calculation example for remaining running time

The lubrication point requires a dispensing quantity of 4,3 cm³ of grease after every 100 hours. The lubricator and LC250 (250 cm³) are set to a dispensing time of eight months, as prescribed.

After two months at a residual volume of 75 %, operation is interrupted; the plant and consequently the lubricator remain deactivated for six weeks.

Once the plant has been reactivated, when should the LC unit be replaced?

Example

$$R_{LZ} = \frac{SZ \cdot RV}{100} = \frac{8 \cdot 75}{100} = \frac{600}{100} = 6$$

According to the formula, the changeover should take place after six months.

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Changing the LC unit

The simultaneous flashing of the red and green LED combined with the empty level reading on the display, *Figure 17*, indicate that the empty LC unit and the battery set must be replaced immediately.

The lubricator's control system always assumes that a new, complete LC unit is used and continues with the previous running time setting.

Attention!

The LC must not be opened or refilled under any circumstances.

Only new, completely filled FAG LC units should be used.

Use a new FAG battery set at the same time.

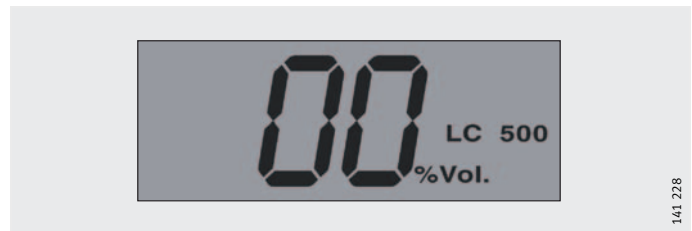
Protect the drive system and control circuit board against moisture. The unit should only be changed in dry conditions.

When changing the LC unit for a different size, the appropriate cover should be used.

If the setting on the display does not correspond to the size of the fitted LC unit, this will lead to incorrect dispensing quantities and displays.

Dispose of old parts in accordance with the applicable regulations.

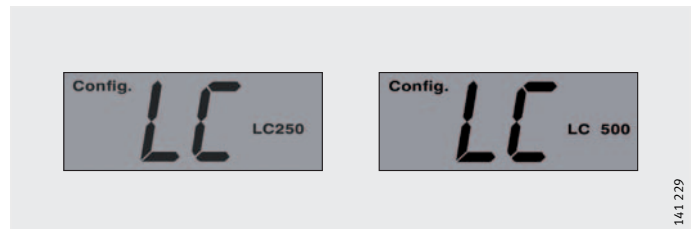
Figure 17
Change the LC unit
Display "00 %vol."



Setting the volume

The volume of the LC unit is selected in the configuration menu, page 18, by using the two control keys on the drive. Two settings are possible, *Figure 18*.

Figure 18
LC unit with volume of 250 cm³
or 500 cm³



Procedure for replacing the LC unit

Work steps:

- Rotate the cover on the drive in an anti-clockwise direction and remove.
- Remove the empty LC unit; “LC” will appear on the display and the red LED will flash.
- Remove the sealing cap from the new LC unit, *Figure 8*, page 11.
- Push the LC unit into the cover until the lubricant works its way out of the outlet, *Figure 9*, page 12.
- Fit the LC unit, rotate until the catch locks into place and the teeth of the LC unit and the drive engage with each other. The lubricator's control system automatically detects the new LC unit. “--” appears in the display if the device was previously deactivated, or “99 % vol.” if the device was activated prior to the changeover.
- If the lubricator was activated, it will continue to work with the previous running time setting. If not, activate.
- Where necessary, change the configuration of the lubricator, page 18.

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Error messages and troubleshooting

Any function defects are detected by the electronic control system and shown on the display. Whilst a defect is being displayed, the system will shut down until the defect has been eliminated and the error message has been acknowledged. Exception: Displays F1 to F6 for connected distributor, see user manual for FAG C6-MP-DISTRIBUTOR. The error messages are acknowledged and removed by pressing the “ON/OFF SELECT” key.

Troubleshooting

For each error message displayed, the red LED will also flash. Localize and eliminate possible defect sources using the table.

Display reading	Defect	Possible cause	Remedy
E1	Lubricator has been deactivated	Excessive motor current, outlet is blocked	Remove blockage, acknowledge defect by holding down the “ON/OFF SELECT” key for a long period
		Battery set empty	Use new battery set and fit full LC unit
E4	Lubricator has been deactivated	Drive mechanics defective	Replace drive
LC	System is not detecting an LC unit	LC unit missing	Fit full LC unit use new battery set
Lo	No power supply	Battery set empty or missing completely	Use new battery set and fit full LC unit

Schaeffler Customer Service will provide assistance if a problem occurs which is not included in the overview.

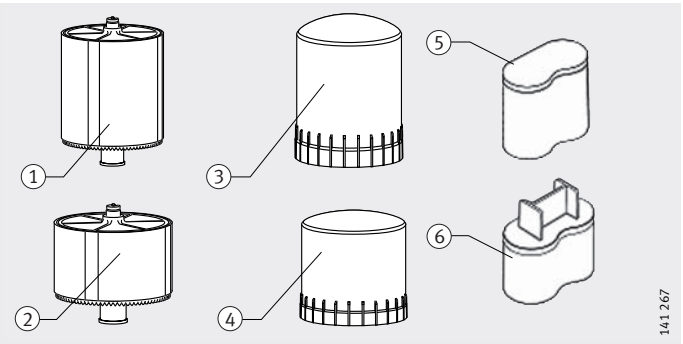
Accessories and service

Due to the high pressure of up to 25 bar, only original replacement parts should be used. This applies in particular to lubricant feed lines.

Replacement parts

All FAG replacement parts conform to the technical requirements.

Figure 19
Replacement parts



No.	Description	Ordering designation
①	LC250 with 250 cm³ of special lubricant Arcanol MULTITOP LC250 with other Arcanol greases or special greases	ARCALUB-C6.LC250-MULTITOP Available by agreement
②	LC250 with 500 cm³ of special lubricant Arcanol MULTITOP LC500 with other Arcanol greases or special greases	ARCALUB-C6.LC500-MULTITOP Available by agreement
③	Cover for LC250 made from transparent plastic Cover for LC250 made from aluminium (for lubricants containing ester)	ARCALUB-C6.CAP250 Available by agreement
④	Cover for LC500 made from transparent plastic Cover for LC500 made from aluminium (for lubricants containing ester)	ARCALUB-C6.CAP500 Available by agreement
⑤	Battery set (0 °C to +60 °C)	ARCALUB-C6.BATTERY
⑥	Battery set (–20 °C to +60 °C)	ARCALUB-C6.BATTERY-LT

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Accessories All accessory parts must conform to the technical requirements.

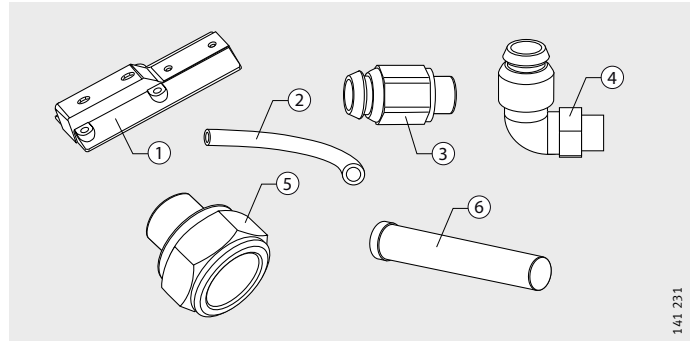


Figure 20
Accessories

No.	Description	Ordering designation
①	Holder for FAG Motion Guard CONCEPT6 CONTROL	ARCALUB-C6.HOLDER
②	Special lubricant feed line 5 m (inside diameter 5 mm)	ARCALUB-C6.TUBE-5M
③	Straight hose connector $G^{1/8}$ for lubricant feed line	ARCALUB-C6.JOINT-MP-0-SET
④	Angled hose connector $G^{1/8}$ for lubricant feed line	ARCALUB-C6.JOINT-MP-90-SET
⑤	Reducer $G^{3/8}$ to $G^{1/4}$	ARCALUB-C6.NIPPLE-G3/8-G1/4
⑥	Grease cartridge 400 g for prelubrication with a grease gun, filled with Arcanol MULTITOP	Available by agreement
	Grease cartridge 400 g for prelubrication with a grease gun, filled with other lubricants	Available by agreement

CD-ROM containing FAG Motion Guard SELECT MANAGER software (lubricant quantity calculation), lubrication and maintenance plan and the user manual can be obtained in PDF format on request.

Service The operator has the option of returning the empty lubricator to Schaeffler KG for:

- disposal of the used parts in an environmentally-friendly manner,
- replacement of the LC unit,
- performing the required settings (dispensing time, LC unit and outlets).

EU Declaration of Conformity



EU Declaration of Conformity

In accordance with EG Machinery Directive 98/37/EG
and EMC Directive 89/336EWG

*We hereby declare that the product described below is in conformity with the applicable health and requirements of the EU Directive in terms of its design and type and in the execution we have brought into circulation.
This declaration shall cease to be valid if any modification is made to the product without our agreement.*

Product description: Automatic lubricator
Product name: FAG Motion Guard CONCEPT6
Type: LC250 and LC500

Applicable harmonised standards:

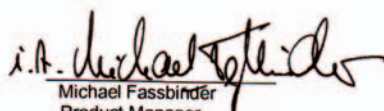
EN ISO 12100-1:2003 Safety of machinery – Basic concepts, general principles for design
– Part 1: Basic terminology and methodology

EN ISO 12100-2:2003 Safety of machinery – Basic concepts, general principles for design
– Part 2: Technical principles

EN 60204-1:1998 Electrical equipment of machines

Signatures:


Armin Kempkes
General Manager F'IS


Michael Fassbinder
Product Manager
F'IS Lubrication Products

Date:
Schweinfurt, 31.01.2008

This declaration certifies conformity with the stated directives but does not represent a guarantee of characteristics.
The safety guidelines in the user manual must be observed.

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FAG Motion Guard CONCEPT6

Function and operation in brief

This brief overview contains some important guidelines on setting the lubricator and operating it quickly and easily – it does not replace the detailed user manual.

Attention!

The safety guidelines and extensive information in the detailed user manual must be observed.

This brief overview only applies to lubricator FAG Motion Guard CONCEPT6 in combination with lubricant cartridges LC250 or LC500.

- ① Drive including electronic system, motor and pump
- ② “MODE SAVE” key, configuration menu and settings
- ③ Red LED, additional malfunction display
- ④ LC unit (lubricant cartridge)
- ⑤ Cover with bayonet catch
- ⑥ Type of LC unit with lubricant volume in cm³
- ⑦ Type of lubricant and fill date
- ⑧ Display showing operating conditions, current lubricant volume, settings and any malfunctions
- ⑨ “OFF/ON SELECT” key for the settings
- ⑩ Green LED, function display
- ⑪ Distributor connection for FAG C6-MP-DISTRIBUTOR
- ⑫ Connection for lubrication point or lubricant feed line (G³/₈ external or G¹/₈ internal)

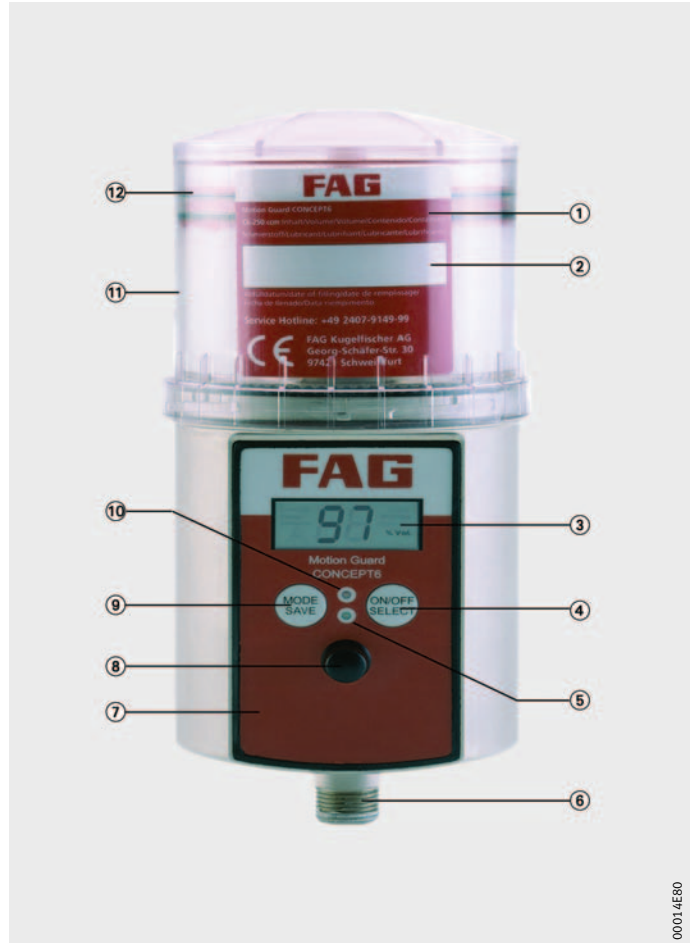


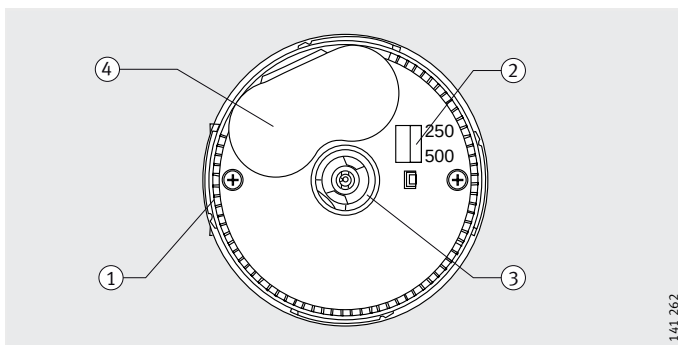
Figure 21

Lubricator
FAG Motion Guard CONCEPT6

- ① Teeth for positioning the LC unit
- ② Contact bridge, no function
- ③ Drive catch for spindle drive
- ④ Battery compartment

Figure 22

Underside of the drive



Installing and replacing the lubricant cartridge (LC unit)

Install the lubricator's drive directly at the lubrication point or fix in place using the enclosed holder.

The lubricant feed line must not exceed 5 m in length.

- Remove the sealing cap from the LC unit and place the LC unit in the cover.
- Push the LC unit into the cover until grease escapes from the outlet opening.
- Insert battery set.
- Position the cover, complete with LC unit, on the drive; the catch must lock into place and the teeth of the LC unit and the drive must engage with each other.
- Rotate the cover in a clockwise direction until the bayonet catch locks into place.

Calculate the dispensing time

The required grease quantity in cubic centimetres per 100 operating hours is based on the data supplied by the manufacturer for the point to be lubricated.

The detailed user manual contains all of the information on the required lubricant quantities, the dispensing time which is dependent on the volume of the LC unit and the setting mode.

The software FAG Motion Guard Select Manager provides a simple way of calculating the dispensing time.

This can be downloaded from the website www.fis-services or requested free of charge in the form of a CD-ROM.

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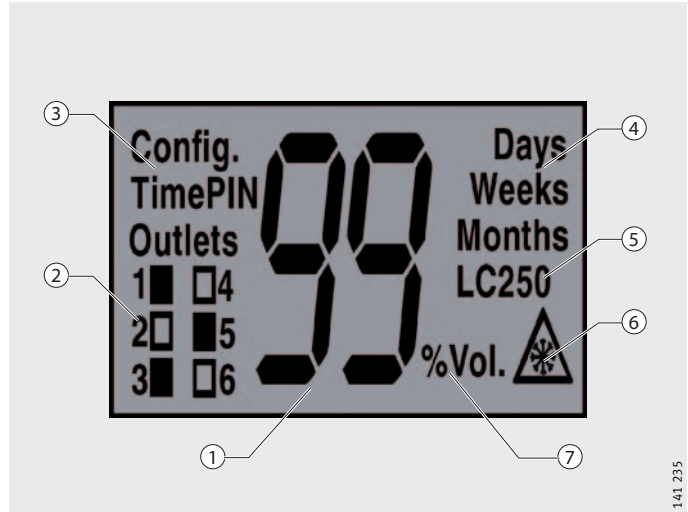
Activate lubricator

Hold the “OFF ON SELECT” key down for longer than 4 s.

The residual volume of the LC unit will appear on the display as a percentage and the green LED will flash.

- ① Residual lubricant volume display, dispensing time, outlet numbers, PIN and error recognition
- ② Outlets 1 to 6, activated outlets (FAG C6-MP-DISTRIBUTOR)
- ③ Configuration menu
- ④ Setting mode, selected time dimension
- ⑤ Type of connected LC unit
- ⑥ Ice crystal in the form of a flashing signal in the permissible minus temperature range and in the form of a permanent signal at less than -20°C (low-temperature deactivation)
- ⑦ Residual lubricant volume as a percentage

Figure 23
Display



Settings on the drive

The two keys are used to configure the volume of the LC unit, the dispensing time, the outlets and the PIN.

- Hold down “MODE SAVE” until the set time appears (days, weeks or months).
- Hold “MODE SAVE” down again for a long period until the request for entry of the current pin is visible (the PIN cannot be changed in this instance, the display PIN “00” represents the delivered state).
- Hold “MODE SAVE” down as often as required for long periods until the respective configuration menu is achieved (volume of LC unit, dispensing time, outlets or PIN change). Perform the required settings within the menu by briefly holding down “MODE SAVE” or “ON/OFF SELECT”

Adopt settings

Hold down the “MODE SAVE” key until “--” appears on the display.

Deactivate lubricator

Hold the “ON/OFF SELECT” key down for longer than 4 s, until “--” appears on the display.

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We reserve the right to make technical changes.

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